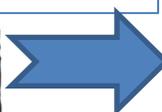


'Health and the People' - Discovery and Development of Penicillin



A chance discovery!

Alexander Fleming

- Served in the army medical corps during WW1 where he studied soldiers infected wounds.
- Became a professor of bacteriology in 1928.
- Discovered the penicillin mould that killed bacteria in 1928.
- Jointly awarded the Nobel Prize for medicine in 1945 for his work on Penicillin.

- Fleming went on holiday leaving a pile of petri dishes containing bacteria on the bench in his lab.
- Returned to find mould on one of them. Did it float in from the window via an upstairs lab?
- Staphylococci bacteria had disappeared around the mould.
- Discovered that when diluted it killed bacteria without harming living cells.
- BUT**, it took too long to create enough penicillin to use.
- 1929** he wrote about it in a medical journal - nobody thought it was important!

Enter Howard Florey and Ernst Chain!

1938 - They read Fleming's article on penicillin. Discovered it helped mice recover from infections but 3000 times as much was needed to cure one patient!

1941 - They had enough to test it on one person. Patient began to recover but the drug ran out after 5 days. They had to recycle it using his urine. It ran out and the patient died.

1941 - USA enters WW2 and realises how useful penicillin can be. Made interest free loans to US companies to buy equipment needed to make penicillin. British firms also begin mass producing it.

1944 - over 2.3 million doses were used to heal injured soldiers on D-Day.



Ernst Chain

Howard Florey



Tanks used to produce penicillin. The quantity needed was huge, 2000 litres were needed to treat just one patient. By 1943, 425 million units were being produced, enough for 170 patients. It was clear that funding was needed from governments to produce the amount needed to win a war.

Marrying a foreign prince or King could lead to England being controlled by a foreign country

Marrying an Englishman could cause jealousy and rivalry within the Queen's court

Her sister Marys marriage to King Philip of Spain was unpopular and didn't result in any heirs to the throne.

A husband had legal authority over his wife - did Elizabeth not want to be controlled?

Giving birth was a risk in the 16th century and could result in the death of the mother



Why did Elizabeth never marry?



Factions! Essex Vs Cecil

There was only ever going to be one winner. The Cecil family had too much power in the court. Essex's rival (Robert Cecil) was son of William Cecil (Secretary of State)



What was important about the Essex rebellion?

Foolish mistakes!

Essex made many mistakes such as; answering the Queen back, going against orders in Ireland, storming in to the Queen's private quarters to catch her without her wig and then having his monopoly to import sweet wines removed - Embarrassing!

Anybody could lose everything!

Essex became bankrupt after losing his right to collect taxes on imported wine. From Lord Lieutenant in Ireland to nothing it showed how easy it was to lose everything. Elizabeth had ultimate power!

An older Queen was still in control!

Even though Elizabeth was in her 60's she proved that she would still not be messed with. She ordered Essex's execution as a strong message to any other courtiers considering a similar move!



'Elizabethan England 1568-1603'



Robert Dudley (Earl of Leicester) - Once very close to the Queen. Rumours over death of first wife (Elizabeth involved?) Gossip about this event ruled any marriage out.



King Philip II of Spain - Was married to Elizabeth's sister Mary, this marriage was never popular with the English people. Phillip was Catholic and Elizabeth was Protestant - too much of a risk?



Francis, Duke of Alencon and Anjou - Elizabeth is 46 when she meets him, too late for children? Some of the Privy Council were against it due to threat of the French taking the throne if Elizabeth died. Many English people hated the French (xenophobia) and Catholics!



Key Words

Antibiotic - A drug made from bacteria that kill other bacteria to cure infection or illness.

Bacteriology - The study of bacteria, how it lives and how it can be defeated.

Suitor - Somebody wishing to ask for the Queen's hand in marriage.

Heir - The next in line to the throne (preferably a male)

Monopoly - The right to control the sale of particular goods.

Factions - Rival families or groups within the Queen's court.

'Health and the People' - Discovery and Development of Penicillin



A chance discovery!

Alexander Fleming

- Studied soldiers infected wounds during World War One.
- A very untidy scientist - turned out to be a good thing!
- Discovered the penicillin mould that killed bacteria in 1928.
- Won the Nobel Prize for medicine in 1945 for his work on Penicillin.

- Fleming went on holiday leaving a pile of petri dishes containing bacteria on the bench in his lab.
- Came back to find a mystery mould had floated onto one through an open window.
- The bacteria had been killed around the new mould.
- It worked!
- BUT**, it took too long to create enough penicillin to use.
- 1929** he wrote about it - nobody read it though!

Enter Howard Florey and Ernst Chain!

1938 - They read Fleming's article on penicillin. Discovered they needed lots of penicillin to cure a human patient

1941 - They had enough to test it on one person. Patient began to recover but the drug ran out after 5 days. They had to recycle it. It ran out and the patient died.

1941 - USA enters World War Two and realises that penicillin can cure injured soldiers. Made loans to US companies to buy equipment needed to make penicillin. British firms also begin making it in huge numbers

1944 - over 2.3 million doses were used to heal injured soldiers on D-Day.



Ernst Chain

Howard Florey



Tanks used to produce penicillin. The quantity needed was huge, 2000 litres were needed to treat just one patient. By 1943, 425 million units were being produced, enough for 170 patients.

England might be controlled by a foreign ruler!

A man had more power than his wife in the 16th century

Marrying one Englishman could cause jealousy among others in the court

Queen Mary never had any children with King Phillip of Spain and it was a very unpopular marriage



Women faced a huge risk of dying during child birth



Why did Elizabeth never marry?



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'Elizabethan England 1568-1603'



Robert Dudley (Earl of Leicester) - Once Elizabeth's boyfriend? First wife died suddenly. Rumours over Elizabeth being involved. No marriage possible after this!



King Philip II of Spain - Once married to Queen Mary (Elizabeth's sister) English people did not like him!

Phillip was Catholic and Elizabeth was Protestant - he could change England's religion back to Catholic!



Francis, Duke of Alencon and Anjou - Elizabeth is 46 when she meets him, too late for children? A fear that if Elizabeth died this would give the French control of England. Many English people hated the French and Catholics!

An older Queen was still in control!

Even though Elizabeth was in her 60's she proved that she would still not be messed with. She ordered Essex's execution as a strong message to any other courtiers considering a similar move!

